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EXAMINER

LEJA, RONALD W

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2836

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/912,288

Applicant(s)

CHEN ET AL.

Examiner

Ronald W Leja

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10, 13, 14, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13, 14, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2836

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-10, 13, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narita et al. (5,973,901) in view of Hurst et al. (4,870,530).

Narita et al. disclose, in Figure 9, an electrostatic discharge protective device comprising a thyristor (11) with an anode connected to a pad (1) and a cathode connected to a common discharge line (10). A triggering device (D10) is connected between the cathode gate and the anode, but the details of the thyristor are not shown. However, Hurst et al. teach the use of thyristors protecting various pad to an

Art Unit: 2836

IC package. Addressing Claims 1-4, there is a first bipolar transistor, (Q2) and a second transistor, (Q1) which form a thyristor. It would have been obvious to one having ordinary skill in the art to configure the bipolar transistors and resistors as shown in Hurst et al. in order to form an SCR which will allow for a protection device which can shunt transients to the common discharge line, thereby protecting an internal IC circuit and increasing reliability. As far as specific trigger voltages, such limitations would have been obvious to one having ordinary skill in the art at the time of the invention as a means to set the protection level deemed necessary for the particular application-at-hand. Use of an open-ended common discharge line (Claim 17) would have been obvious as a means to offer a circuit application wherein a floated condition was required and yet transient protection to the circuit was provided; such limitations would have been well within the abilities of one having ordinary skill in the art.

3. Applicant's arguments filed 8/14/03 have been fully considered but they are not persuasive, and as such, the above rejection has been maintained from the Office Action of 5/9/03. Applicants' arguments begin on Page 6 of the Response and appear to be a piecemeal analysis discussing the Hurst et al. (4,870,530) Reference. It is first noted that the rejection of the claims involved the disclosure of Narita et al. (5,973,901) in view of the teachings of Hurst et al. (4,870,530). Secondly, Hurst et al. was relied upon solely for the teachings of the details of an SCR/thyristor comprising bipolar transistors and

Art Unit: 2836

resistors. The Examiner would have relied upon the Prior Art Figure 4 of Narita et al., but believes that the transistor configurations illustrated in the Prior Art Figure 4 to be in error, and as such, relied upon the teachings of Hurst et al. for a correct teaching, so as to avoid any confusion. Figure 9 of Narita et al. clearly illustrates the thyristor and zener diode orientation between a bonding pad, cathode gate and common discharge line as required by Independent Claims 13 and 17, with the sole exception of the bipolar transistor details of the thyristor. The well known bipolar bipolar transistor details were relied upon by the Hurst et al. Reference and not specific details of how and why Hurst et al. were offering triggering protection to pins of an IC. Applicants offer the following statements:

*"The claimed invention provides a semiconductor device having an unexpected result. The claimed invention provides an ESD protection network having a lower triggering voltage and a lower holding voltage than prior ESD protective devices. The claimed invention also provides an enhanced ESD protection performance apparatus equipped with a common discharge line for protecting VLSI circuits and particularly CMOS devices. The claimed invention could reduce the SCR triggering voltage from about 30-50 volts of the prior art to a level of about 5-10 volts and stabilizes the voltage of the PNP bipolar junction transistor or the NPN bipolar junction transistor. The claimed invention could provide the semiconductor device to reduce the SCR triggering voltage to protect VLSI circuits because the claimed invention is nonobvious." (emphasis added).*

Applicants have not pointed to any specific portion of the Specification for support of the above statements, nor have they submitted any data supporting the statements. Statements involving "could" would respect to performance aspects of the claimed invention

Art Unit: 2836

over that of the Prior Art cannot be fully considered without additional support because i.e. with respect to Claim 13, the configuration found in Figure 9 of Narita et al. reads on the claim with the exception of showing the well known bipolar transistor configuration of the thyristor. Hurst et al. were relied upon for the bipolar configuration. Therefore, a "could distinction" between the claimed invention and the Prior Art cannot be seen without some claimed structural difference.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald W Leja whose telephone number is (703) 308-2008. The examiner can normally be reached on Monday thru Friday.

Art Unit: 2836

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (703) 308-3119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Ronald W. Leja  
Primary Examiner  
Art Unit 2836

rwl  
Thursday, November 27, 2003

11/27/03